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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,987	01/16/2004	Ravishankar Sankaranarayanan	TI-37177	4998
23494	7590	01/12/2006	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED			CHEN, SHIH CHAO	
P O BOX 655474, M/S 3999			ART UNIT	PAPER NUMBER
DALLAS, TX 75265			2821	

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/757,987	SANKARANARAYANAN, RAVISHANKAR	
	Examiner	Art Unit	
	Shih-Chao Chen	2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-17 and 19-26 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 November 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: on page 7, line 10 & line 19, "210-1 through 210-4" should be changed to --210-A through 210-D--.

Appropriate correction is required.

2. The disclosure is objected to because of the following informalities: on page 8, line 20, "intersection of Figure 2" should be changed to intersection of --Figure 1-- .

Appropriate correction is required.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the plurality of lens in claims 4 & 9 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering

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of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claims 20-21 are objected to because of the following informalities: "An antenna" should be changed to --The antenna--. Appropriate correction is required.
5. Claims 23-24 are objected to because of the following informalities: "A method" should be changed to --The method--. Appropriate correction is required.
6. Claim 26 is objected to because of the following informalities: "A lens" should be changed to --The lens--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-10 and 12-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Mizuno et al. (U.S. Patent No. 5,977,904).

Regarding claim 1, Mizuno et al. teaches in figures 1-6 an antenna for use in a wireless environment the antenna [2] comprising; a plurality of antenna elements [12a-12f] generating a beam (See FIG. 5); and a lens [8] collimating the beam in a desired

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direction (See FIG. 5) such that the antenna sends and receive signals from the desired direction.

Regarding claim 2, Mizuno et al. teaches in figures 1-6 the antenna of claim 1, wherein the desired direction comprises a direction in which a high density of wireless users are expected to be present in the wireless environment.

Regarding claim 3, Mizuno et al. teaches in figures 1-6 the antenna of claim 2, wherein the direction is along a road.

Regarding claim 4, Mizuno et al. teaches in figures 1-6 the antenna of claim 1, wherein each of the plurality of lens [8] provided in a corresponding direction.

Regarding claim 5, Mizuno et al. teaches in figures 1-6 the antenna of claim 1, wherein the lens [8] covers all of the antenna elements [12a-12f] and forms a radome.

Regarding claim 6, Mizuno et al. teaches in figures 1-6 a base station comprising: an antenna [2] containing a plurality of antenna elements [12a-12f] and a lens [8], wherein the plurality of antenna elements generate a beam (See FIG. 5) and the lens collimates the beam in a desired direction (See FIG. 5) such that the base station sends signals in the desired direction.

Regarding claim 7, Mizuno et al. teaches in figures 1-6 the base station of claim 6, wherein the desired direction comprises a direction in which a high density of wireless users are expected to be present.

Regarding claim 8, Mizuno et al. teaches in figures 1-6 the base station of claim 7, wherein the direction is along a road.

Regarding claim 9, Mizuno et al. teaches in figures 1-6 the base station of claim 6, wherein each of the plurality of lens [8] is provided in a corresponding direction.

Regarding claim 10, Mizuno et al. teaches in figures 1-6 the base station of claim 6, further comprising: a transmitter [10] receiving a baseband signal and generating a broadband signal in a frequency range suitable for transmission by the antenna [2]; and a divider [20a, 20b] receiving the broadband signal and generating an input signal (See FIG. 2) for each of the plurality of antenna elements [120a-12f] .

Regarding claim 12, Mizuno et al. teaches in figures 1-6 the base station of claim 6, further comprising: a summing block (See FIG. 2) receiving a plurality of electrical signals from the antenna elements [12a-12f] and generating a broadband signal; and a receiver block [10] generating a baseband signal from the broadband signal.

Regarding claim 19, Mizuno et al. teaches in figures 1-6 an antenna configured to generate a desired collimation pattern comprising: a plurality of antenna elements [12a-12f] configured to generate a beam (See FIG. 5); and a lens [8] configured to collimate the beam in a desired direction (See FIG. 5) such that the antenna [2] sends and receives signals from the desired direction, wherein a shape of the lens is determined using a composite radiation pattern of the antenna and the desired collimation pattern.

Regarding claim 20, Mizuno et al. teaches in figures 1-6 the antenna according to claim 19, wherein the composite radiation pattern of the antenna [2] is determined according to a radiation pattern of each of the plurality of antenna elements [12a-12f].

Regarding claim 21, Mizuno et al. teaches in figures 1-6 an antenna according to claim 20, wherein the radiation pattern of each of the plurality of antenna elements [12a-12f] is determined with reference to a common origin of the radiation pattern of the plurality of antenna elements.

Regarding claim 25, Mizuno et al. teaches in figures 1-6 a lens for an antenna, the lens [8] having a shape that is determined by characterizing a desired collimation pattern for the antenna [2] and a composite radiation pattern of a plurality of antenna elements [12a-12f].

Regarding claim 26, Mizuno et al. teaches in figures 1-6 a lens according to claim 25, wherein the composite radiation pattern is determined based on a radiation pattern for the plurality of antenna elements [12a-12f], the radiation pattern being determined with reference to a common origin of the plurality of antenna elements.

Regarding method claims 13-17 & 22-24, the apparatus discussed above would perform the claimed method.

Allowable Subject Matter

9. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

10. Applicant's arguments with respect to claims 1-3, 5-8 and 12 have been considered but are moot in view of the new ground(s) of rejection.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-Chao Chen whose telephone number is (571) 272-1819. The examiner can normally be reached on Monday-Friday from 7 AM to 4:30 PM, First Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shih-Chao Chen
Primary Examiner
Art Unit 2821


SHIH-CHAO CHEN
PRIMARY EXAMINER

SXC
January 9, 2006